Guidelines for commissioning and operation of hydraulic turbines, pump-turbines and storage pumps

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN IEC 60545:2021 sisaldab Euroopa standardi EN IEC 60545:2021 ingliskeelset teksti.	This Estonian standard EVS-EN IEC 60545:2021 consists of the English text of the European standard EN IEC 60545:2021.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 13.08.2021.	Date of Availability of the European standard is 13.08.2021.
Standard on kättesaadav Eesti Standardimis- ja Akrediteerimiskeskusest.	The standard is available from the Estonian Centre for Standardisation and Accreditation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 29.120.50

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 60545

August 2021

ICS 23.100.10

English Version

Guidelines for commissioning and operation of hydraulic turbines, pump-turbines and storage pumps (IEC 60545:2021)

Lignes directrices pour la mise en service et l'exploitation des turbines hydrauliques, des pompes-turbines et des pompes d'accumulation (IEC 60545:2021)

Richtlinien für die Inbetriebnahme und den Betrieb von Wasserturbinen, Pumpturbinen und Speicherpumpen (IEC 60545:2021)

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

The text of document 4/407/FDIS, future edition 2 of IEC 60545, prepared by IEC/TC 4 “Hydraulic turbines” was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60545:2021.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2022–04–28
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2024–07–28

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Endorsement notice

The text of the International Standard IEC 60545:2021 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60041	NOTE	Harmonized as EN 60041
IEC 60204-1:2016	NOTE	Harmonized as EN 60204-1:2018 (modified)
IEC 60308	NOTE	Harmonized as EN 60308
IEC 60609-1:2004	NOTE	Harmonized as EN 60609-1:2005 (not modified)
IEC 62006	NOTE	Harmonized as EN 62006
IEC 62256:2017	NOTE	Harmonized as EN 62256:2017 (not modified)
IEC 62364:2019	NOTE	Harmonized as EN IEC 62364:2019 (not modified)
IEC 63132 (series)	NOTE	Harmonized as EN IEC 63132 (series)

IEC 60545

Edition 2.0 2021-06

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Guidelines for commissioning and operation of hydraulic turbines, pump-turbines and storage pumps

Lignes directrices pour la mise en service et l'exploitation des turbines hydrauliques, des pompes-turbines et des pompes d'accumulation

IEC 60545:2021-06(en-fr)

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Guidelines for commissioning and operation of hydraulic turbines, pump-turbines and storage pumps

Lignes directrices pour la mise en service et l'exploitation des turbines hydrauliques, des pompes-turbines et des pompes d'accumulation

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CONTENTS

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GUIDELINES FOR COMMISSIONING AND OPERATION OF HYDRAULIC TURBINES, PUMP-TURBINES AND STORAGE PUMPS

FOREWORD

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International Standard IEC 60545 has been prepared by IEC technical committee 4: Hydraulic turbines.

This second edition cancels and replaces the first edition published in 1976 and the first edition of IEC 60805 published in 1985. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) the focus is on the commissioning and operation of the hydraulic machine. Interfaces to the electric machine are mentioned only for a better understanding of the context;
b) the definitions of tests for commissioning and adjustable speed are updated to state of the art;
c) the record sheets ‘measurements during erection’ are excluded (see IEC 63132 (all parts);
d) the maintenance is excluded (see IEC 62256).

The text of this International Standard is based on the following documents:

FDIS	Report on voting
4/407/FDIS	4/420/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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GUIDELINES FOR COMMISSIONING AND OPERATION OF HYDRAULIC TURBINES, PUMP-TURBINES AND STORAGE PUMPS

1 Scope

The purpose of this document is to establish, in a general way, suitable procedures for commissioning and operation of hydraulic machines and associated equipment, and to indicate how such machines and equipment should be commissioned and operated.

Commissioning and operation of the associated equipment are not described in detail in this document but is considered in the commissioning and operation procedure as a separate step.

Machines of up to about 15 MW and reference diameters of about 3 m are generally covered by IEC 62006.

It is understood that a guideline of this type will be binding only if the contracting parties have agreed upon it.

The guidelines exclude matters of purely commercial interest, except those inextricably connected with the conduct of commissioning and operation.

The guidelines are not concerned with waterways, gates, drainage pumps, cooling-water equipment, generators, motor-generators, electrical equipment (e.g. circuit breakers, transformers) etc., except where they cannot be separated from the hydraulic machinery and its equipment.

Wherever the guidelines specify that documents, drawings or information are supplied by a supplier (or by suppliers), each individual supplier should furnish the appropriate information for its own supply only.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

3.1 Machine and equipment

3.1.1
hydraulic machinery
turbines, storage pumps, pump-turbines, valves, guide and thrust bearings used in hydroelectric power and pumped storage stations

Note 1 to entry: The term hydraulic machinery includes hydraulic torque converter and all type of main inlet valves.